

Claims

5 1) Device for electrostatically holding a wafer of conductor or semi-conductor material, comprised of an electrically insulating soleplate (1) on which the wafer (2) is arranged, of at least two pairs of electrodes (7), (8), (9), and (10), where the two electrodes of each pair are subjected to a voltage difference generated by a power supply (6) that supplies a D.C. voltage and thus creates an intense electric field, these electrodes are arranged under the insulating surface, characterized in that the electrode pairs are supplied cyclically at different polarities in a manner so that at any moment at least one electrode pair holds the wafer.

10 2) Device according to claim 1, characterized in that the electrodes are concentric rings.

15 3) Device according to claim 1 or claim 2, characterized in that the arrangement of electrodes is symmetrical or concentric relative to the center of the soleplate (1).

20 4) Device according to any one of the previous claims, characterized in that the planar surfaces of the two electrodes forming one pair have the same area.

5) Device according to one of the previous claims, characterized in that the surface of contact between the wafer and the adhesion device have geometric variations (bumps or contact terminals, for example).

5 6) Device according to one of the previous claims, characterized in that the electrodes and the dielectric layer (23) are made by serigraphy of thick films on a base plate (22).

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cont'd.*
7) Device according to one of the previous claims, characterized in that a power supply cycle of the electrodes can be the following:

10 From t0 to t1, the electrode (7) is supplied positively and the electrode (9) is supplied negatively.

From t1 to t2, the electrode (7) is supplied positively, the electrode (9) is supplied negatively and the electrode (8) is supplied positively and the electrode (10) is supplied negatively.

15 At t2, the electrodes (7) and (9) no longer need to be supplied with power since the electrodes (8) and (10) have taken over the relay.

From t2 to t3, the electrode (8) is supplied positively, and the electrode (10) is supplied negatively.

20 From t3 to t4, the electrode (8) is supplied positively, the electrode (10) is supplied negatively and the electrodes (7) and (9) are re-supplied, but at different polarities which allows the charges to drain off.

From t4 to t5, the electrode (7) is supplied negatively, and the electrode (9) is supplied positively.

The cycle continues thus during the entire treatment or manufacturing phase of the wafer.

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cont'd.*
8) Device according to one of the previous claims, characterized in that each electrode

5 (7), (8), (9) and (10) is split in two.

9) Device according to one of the previous claims, characterized in that the frequency of commutation of the electrodes is between 0.01 Hz and 1 Hz.

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